



# [12]实用新型专利说明书

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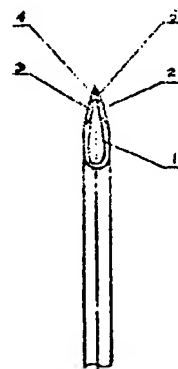
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[54]实用新型名称 五棱刃口注射针

[57]摘要

本实用新型提供了一种五棱刃口注射针, 采用现有注射针制造用自动开刃磨床, 所制造的注射针, 针尖呈五棱形刃口, 注射针尖顶端两刃口呈对称立体状, 针尖锋利度比原有三棱刃口注射针提高, 注射时可减少肌肉反弹阻力, 进针快, 大大减轻患者痛感。



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## 权 利 要 求 书

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1、一种注射用针，由针管、针座组成，其特征在于：  
注射针尖呈五棱形刃口（图1），注射针尖顶端（图1，（4）、（5））  
两刃口呈对称立体状。

## 五棱刃口注射针

本实用新型涉及一种五棱刃口注射针，属医疗器材领域。

，目前在医疗保健注射各种药液等时所用的注射针，其针尖均为平面三棱刃口，在制造时均采用传统的先刃磨平面，一般为 $12^\circ$ 倾角，然后用相同的角度滚动针管，倒左右两面刃角，形成平面三棱刃口。采用上述注射针给病人作肌肉、皮内等注射时，有较强的痛感。

为克服上述注射针的缺点，本实用新型的目的在于提供一种针尖更为锋利，进针容易，能减少注射时痛感的五棱刃口注射针。

本实用新型采用注射针制造用开刃磨床，当刃磨注射针第一倾角完成后，通过电控换向阀和气动元件，使针管变位并自动刃磨第二倾角的左、右两侧，然后再次自动变位，刃磨第三倾角的左右二侧，从而刃磨出尖端呈对称立体状锋刃，形成五棱刃口注射针。由于五棱刃口注射针针尖比传统三棱刃口注射针锋利度提高，在注射时针尖进入肌肉和皮下组织时，可产生分层分离肌肉的作用，减少肌体的反弹阻力，可加快进针时间，大大减轻了患者痛感

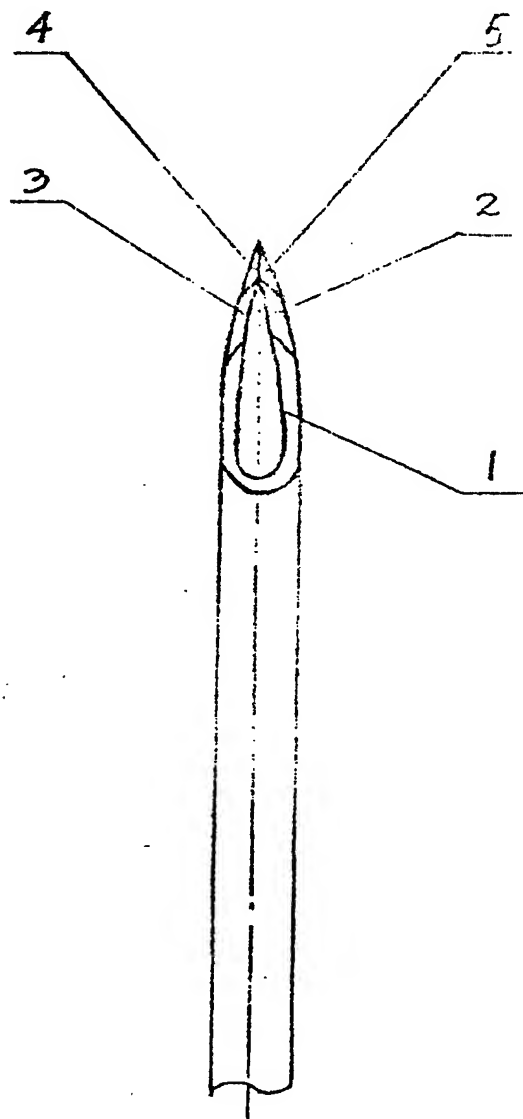
下面结合附图和实施例，对本实用新型作进一步详细的说明。

#### 附图：五棱刃口注射针针尖示意图

本实施例采用普通注射针制造用开刃磨床，夹具通过电控换向阀和气动元件控制，自动变换两种角度。首先将调角主板调节倾角为 $11^{\circ} - 17^{\circ}$ ，然后将排列的不锈钢针管夹住，刃磨第一倾角完成后(附图(1))通过电控换向阀和气动元件，推动夹板向前倾斜 $3^{\circ} - 6^{\circ}$ ，再使针管变位，并自动刃磨第二倾角的左、右二侧(附图(2)、(3))，然后再次自动变位 $1^{\circ} - 3^{\circ}$ ，刃磨第三倾角的左右两侧(附图(4)、(5))，从而刃磨出五棱刃口注射针，针尖顶端两棱呈对称立体状(图1, (4), (5))。

说明书附图

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Chinese Utility Model No. 2145037Y

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NATIONAL INTELLECTUAL PROPERTY BUREAU OF THE PEOPLE'S REPUBLIC OF  
CHINA  
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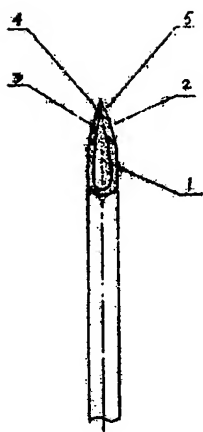
PENTAGONAL CUTTING EDGE INJECTION NEEDLE

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Number of pages of attached figures: 1

[There are no amendments to this patent.]

Abstract

The present design provides a type of pentagonal cutting edge injection needle. It is an injection needle manufactured by using the automatic blade grinding machine used for the current injection needle. The needle tip is a pentagonal cutting edge. The two cutting edges at the top of the injection needle tip are three-dimensionally symmetrical. The needle tip is sharper than that of the conventional triangular cutting edge injection needle. It can reduce the opposing resistance of the muscle during injection. The needle can penetrate more quickly to significantly reduce the pain caused to the patient.



[cover page]

## Claim

A type of injection needle comprised of a needle tube and a needle seat and characterized by the fact that the cutting edge at the tip of the injection needle has a pentagonal shape (Figure 1), and the two cutting edges at the top of the injection needle tip (Figure 1, (4), (5)) are three-dimensionally symmetrical.

## Specification

### Pentagonal cutting edge injection

The present design pertains to a type of pentagonal cutting edge injection needle in the medical equipment field.

The tip of the current injection needle used for injecting various types of liquid medicines has a planar triangular cutting edge. To manufacture such a cutting edge, first, a plane with an inclination angle of  $12^\circ$  is formed by means of cutting/grinding. Then, the needle tube is rolled at the same angle to chamfer the cutting angle on the left and right sides to form a planar triangular cutting edge. When the aforementioned injection needle is used to perform intramuscular and intradermal injection of a patient, it will cause relatively severe pain.

In order to overcome the disadvantage of the aforementioned injection needle, the purpose of the present design is to provide a pentagonal cutting edge injection needle that is sharper and can penetrate more easily to reduce the pain caused during injection.

The present design uses the blade grinding machine used for manufacturing injection needles. After the first inclination angle of an injection needle is formed by means of cutting/grinding, the needle tube is shifted through an electrically controlled reversing valve and a pneumatic element to automatically cut/grind the left and right sides of the second inclination angle. After that, the needle tube is shifted automatically again to cut/grind the left and right sides of the third inclination angle. As a result, a three-dimensionally symmetrical blade is formed at the tip by means of cutting/grinding to form the pentagonal cutting edge injection needle. Since the pentagonal cutting edge injection needle is sharper than the conventional triangular cutting edge injection needle, when the needle tip enters muscle or intradermal tissue during an injection, it can generate a delamination muscle separating effect to reduce the opposing resistance of the muscle. In this way, the penetration time can be cut shorter to significantly reduce the pain caused to the patient.

In the following, the present design will be explained in more detail with reference to the attached figures and application example.

Attached figure: A diagram illustrating the pentagonal cutting edge injection needle.

A blade grinding machine used for manufacturing conventional injection needles is adopted in the present application example, and the fixture is controlled through an electrically

controlled reversing valve and a pneumatic element to switch the cutter between two angles automatically. First, the inclination angle of the main angle-adjusting plate is adjusted to 11-17°. Then, the needle tube made of stainless steel is arranged and clamped. After blade grinding of the first inclination angle is completed (Figure 1), the clamping boards are pushed to incline forward by 3-6° by means of the electrically controlled reversing valve and the pneumatic element. The needle tube is then displaced, and the left and right sides of the second inclination angle are ground automatically (Figures (2) and (3)). The needle tube is automatically displaced again by 1-3°, followed by blade grinding of the left and right sides of the third inclination angle (Figures (4) and (5)) to obtain a pentagonal cutting edge injection needle. The two cutting edges at the top of the injection needle tip (Figure 1, (4), (5)) are three-dimensionally symmetrical.

